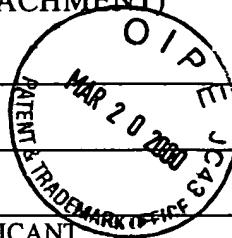


Section 2. Form PTO - 1449 (Modified) (ATTACHMENT)

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FORM PTO-1449 U.S. DEPT. OF COMMERCE (Modified) PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO. BTI-44	SERIAL NO. 09/518,763
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	APPLICANT Blissard et al	
	FILING DATE March 3, 2000	GROUP 1636

U.S. PATENT DOCUMENTS

Exam Initial		DOCUMENT NUMBER	DATE	PATENTEE	CLASS	SUB	FILING DATE IF APPROPR

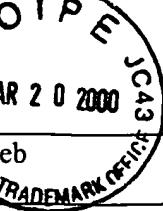
FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

Exam Initial		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB	TRANSLATION YES NO

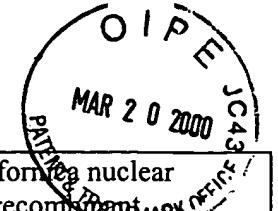
OTHER PRIOR ART

Exam Initial		Author, Title, Date, Pertinent Pages, Etc
RL	AA	Granados, R.R. and Hashimoto, Yoshifumi, Chapter 1: INFECTIVITY OF BACULOVIRUSES TO CULTURED CELLS, pp. 3- 13. in Invertebrate Cell System Applications, Volume II, Jun Mitsuhashi, Editor, CRC Press, Florida, 1989.
RL	AB	Ayres, M.D., Howard, S.C., Kuzio, J., Lopez-Ferber, M. and Possee, R.D. The complete DNA sequence of <i>Autographa californica</i> nuclear polyhedrosis virus. <i>Virology</i> 202 (2), 586-605 (1994)
RL	AC	Beidler, D. R., Tewari, M., Friesen, P. D., Poirier, G. & Dixit, V. M. The Baculovirus p35 protein inhibits Fas- and tumor necrosis factor-induced apoptosis. <i>J Biol Chem</i> 270, 16526-16528 (1995).
RL	AD	Bertin, J. et al. Apoptotic suppression by baculovirus P35 involves cleavage by and inhibition of a virus-induced CED-3-ICE-like protease. <i>Journal of Virology</i> 70, 6251-6259 (1996).
RL	AE	Blissard, G. W. & Rohrmann, G. F. Baculovirus gp64 gene expression: Analysis of sequences modulating early transcription and transactivation by IE1. <i>J. Virol.</i> 65, 5820-5827 (1991).
RL	AF	Bump, N. J. et al. Inhibition of ICE family proteases by baculovirus antiapoptotic protein p35. <i>Science</i> 269, 1885-1888 (1995).
RL	AG	Cartier, J. L., Hershberger, P. A. & Friesen, P. D. Suppression of apoptosis in insect cells stably transfected with baculovirus p35: Dominant interference by N terminal sequences p351-76. <i>J. Virology</i> 68, 7728-7737 (1994).
RL	AH	Chang, M.-J., Kuzio, J. & Blissard, G. W. Modulation of translational efficiency by contextual nucleotides flanking a baculovirus initiator AUG codon. <i>Virology</i> 259, 369-383 (1999).
RL	AI	Clem, R. J., Fechheimer, M. & Miller, L. K. Prevention of apoptosis by a baculovirus gene during infection of insect cells. <i>Science</i> 254, 1388-1390 (1991).

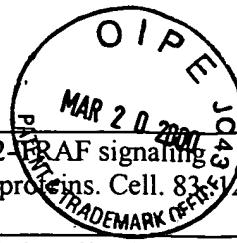
MAR 20 2000



82	AJ	Cryns, V. & Yuan, J. Proteases to die for [published erratum appears in Genes Dev 1998 Feb 1;13(3):371]. <i>Genes Dev</i> 12, 1551-1570 (1998).
82	AK	Davis, T. R. <i>et al.</i> Comparative recombinant protein production in eight insect cell lines. <i>In Vitro Cell Dev Biol</i> 29A, 388-390 (1993).
82	AL	Davis, T. R., Trotter, K. M., Granados, R. R. & Wood, H. A. Baculovirus expression of alkaline phosphatase as a reporter gene for evaluation of production, glycosylation and secretion. <i>Biotechnology (N Y)</i> 10, 1148-1150 (1992).
82	AM	Fisher, A. J., Cruz, W., Zoog, S. J., Schneider, C. L. & Friesen, P. D. Crystal structure of baculovirus P35: role of a novel reactive site loop in apoptotic caspase inhibition. <i>Embo J</i> 18, 2031-2039 (1999).
82	AN	Gage, L. P. The <i>Bombyx mori</i> genome: analysis by DNA reassociation kinetics. <i>Chromosoma</i> 45, 27-42 (1974).
82	AO	Hay, B. A., Wolff, T. & Rubin, G. M. Expression of baculovirus P35 prevents cell death in <i>Drosophila</i> . <i>Development</i> 120, 2121-2129 (1994).
82	AP	Hershberger, P. A., Lacount, D. J. & Friesen, P. D. The apoptotic suppressor P35 is required early during baculovirus replication and is targeted to the cytosol of infected cells. <i>Joturnal of Virology</i> 68, 3467-3477 (1994).
82	AQ	Martin, S. J. & Green, D. R. Protease activation during apoptosis: death by a thousand cuts? <i>Cell</i> 82, 349-352 (1995).
82	AR	Martinou, I. <i>et al.</i> Viral Proteins ElB19K and p35 Protect Sympathetic Neurons from Cell Death Induced by NGF Deprivation. <i>Journal of Cell Biology</i> . 128, 201-208 (1995).
82	AS	Milner, A.E., Johnson, G.D., and Gregory, C.D. Prevention of Programmed Cell Death in Burkitt Lymphoma Cell Lines by bcl-2 Dependent and Independent Mechanisms. <i>International Journal of Cancer</i> 52: 636-644 (1992).
82	AT	Monsma, S. A. & Blissard, G. W. Identification of a membrane fusion domain and an oligomerization domain in the baculovirus GP64 Envelope Fusion Protein. <i>J. Virol.</i> 69, 2583-2595 (1995).
82	AU	Monsma, S. A., Oomens, A. G. P. & Blissard, G. W. The GP64 Envelope Fusion Protein is an essential baculovirus protein required for cell to cell transmission of infection. <i>J. Virol.</i> 70, 4607-4616 (1996).
82	AV	Rabizadeh, S., Lacount, D. J., Friesen, P. D. & Bredesen, D. E. Expression of the baculovirus p35 gene inhibits -mammalian neural cell death. <i>Journal of Neurochemistry</i> 61, 2318-2321 (1993).
82	AW	Rasch, E. M. The DNA content of sperm and hemocyte nuclei of the silkworm, <i>Bombyx mori</i> L. <i>Chromosoma</i> 45, 1-26 (1974).
82	AX	Robertson, N. M. <i>et al.</i> Baculovirus P35 inhibits the glucocorticoid -mediated pathway to cell death. <i>Cancer Research</i> . 57, 43-47 (1997).
82	AY	Sugimoto, A., Friesen, P. D. & Rothman, J. H. Baculovirus p35 prevents developmentally programmed cell death and rescues a ced-9 mutant in the nematode <i>Caenorhabditis elegans</i> . <i>EMBO J.</i> 13, 2023-2028 (1994).
82	AZ	Wang, P., Granados, R. R. & Shuler, M. L. Studies on serum-free culture of insect cells for virus propagation and recombinant protein production. <i>J Invertebr Pathol</i> 59, 46-53 (1992).
82	BA	Wickham, T. J. in <i>Department of Chemical Engineering</i> 208 (Cornell University, Ithaca, NY, 1991).
82	BB	Wickham, T. J., Davis, T., Granados, R. R., Shuler, M. L. & Wood, H. A. Screening of insect cell lines for the production of recombinant proteins and infectious virus in the baculovirus expression system. <i>Biotechnol Prog</i> 8, 391-396 (1992).
82	BC	Xue, D. & Horvitz, H. R. Inhibition of the <i>Caenorhabditis elegans</i> cell-death protease CED-3 by a CED-3 cleavage site in baculovirus p35 protein. <i>Nature (London)</i> . 377, 248-251 (1995).
82	BD	Yu, Z., Podgwaite, J. D. & Wood, H. A. Genetic engineering of a <i>Lymantria dispar</i> nuclear polyhedrosis virus for expression of foreign genes. <i>J Gen Virol</i> 73, 1509-1514 (1992).
82	BE	Clem, R. J. & Miller, L. K. Apoptosis reduces both the in-vitro replication and the in-vivo infectivity of a baculovirus. <i>J Virol</i> 67, 3730-3738 (1993).
82	BF	Lee, J. C., Chen, H. H., Wei, H. L. & Chao, Y. C. Superinfection-Induced Apoptosis and Its Correlation with the Reduction of Viral Progeny in Cells Persistently Infected with Hz-1 Baculovirus. <i>J Virol</i> 67, 6989-6994 (1993).



DR	BG	Lerch, R. A. & Friesen, P. D. The 35-kilodalton protein gene p35 of <i>autographa californica</i> nuclear polyhedrosis virus and the neomycin resistance gene provide dominant selection of recombinant baculoviruses. <i>Nucleic Acids Res</i> 21, 1753-1760 (1993).
DR	BH	Birnbaum, M. J., Clem, R. J. & Miller, L. K. An apoptosis-inhibiting gene from a nuclear polyhedrosis virus encoding a polypeptide with Cys-His sequence motifs. <i>Journal of Virology</i> 68, 2521-2528 (1994).
DR	BI	Gong, M. & Guarino, L. A. Expression of the 39k Promoter of <i>Autographa californica</i> Nuclear Polyhedrosis Virus Is Increased by the Apoptotic Suppressor P35. <i>Virology</i> 204, 38-44 (1994).
DR	BJ	Ribeiro, B. M., Hutchinson, K. & Miller, L. K. A mutant baculovirus with a temperature-sensitive IE-1 transregulatory protein. <i>J. Virol.</i> 68, 1075-1084 (1994).
DR	BK	Clem, R. J. & Miller, L. K. Control of Programmed Cell Death by the Baculovirus Genes p35 and iap. <i>Molecular and Cellular Biology</i> 14, 5212-5222 (1994).
DR	BL	Clem, R. J. & Miller, L. K. in <i>Communications in Cell & Molecular Biology</i> , Vol. 8. <i>Apoptosis II: The molecular basis of apoptosis in disease</i> . 89-110 (Cold Spring Harbor Laboratory Press, Plainview, New York, USA, 1994).
DR	BM	Crook, N. E., Clem, R. J. & Miller, L. K. An apoptosis-inhibiting baculovirus gene with a zinc finger-like motif. <i>J Virol</i> 67, 2168-2174 (1993).
DR	BN	Roy, N. et al. The gene for Neuronal Apoptosis Inhibitory Protein Is partially deleted in individuals with spinal muscular atrophy. <i>Cell</i> 80, 167-178 (1995).
DR	BO	Clem, R. J., Robson, M. & Miller, L. K. Influence of infection route on the infectivity of baculovirus mutants lacking the apoptosis-inhibiting gene p35 and the adjacent gene p94. <i>Journal of Virology</i> . 68, 6759-6762 (1994).
DR	BP	Lu, A. & Miller, L. K. The roles of eighteen baculovirus late expression factor genes in transcription and DNA replication. <i>J. Virol.</i> 69, 975-982 (1995).
DR	BQ	Todd, J. W., Passarelli, A. L. & Miller, L. K. Eighteen baculovirus genes, including lef-11, p35, 39K, and p47, support late gene expression. <i>J. Virol.</i> 69, 968-974 (1995).
DR	BR	Reed, J. C. Bcl-2 and the regulation of programmed cell death. <i>Journal of Cell Biology</i> . 124, 1-6 (1994).
DR	BW	Chejanovsky, N. & Gershburg, E. The wild-type <i>Autographa californica</i> nuclear polyhedrosis virus induces apoptosis of <i>Spodoptera littoralis</i> cells. <i>Virology</i> 209, 519-525 (1995).
DR	BT	Ahrens, C. H. & Rohrmann, G. F. Replication of <i>Orgyia pseudotsugata</i> baculovirus DNA: lef-2 and ie-1 are essential and ie-2, p34, and Op-iap are stimulatory genes. <i>Virology</i> . 212, 650-662 (1995).
DR	BU	Singh, R. P., Al Rubeai, M., Gregory, C. D. & Emery, A. N. Cell death in bioreactors: A role for apoptosis. <i>Biotechnology and Bioengineering</i> . 44, 720-726 (1994).
DR	BV	Singh, R. P., Emery, A. N. & Al-Rubeai, M. Enhancement of survivability of mammalian cells by overexpression of the apoptosis-suppressor gene bcl-2. <i>Biotechnology and Bioengineering</i> 52, 166-175 (1996).
DR	BW	Todd, J. W., Passarelli, A. L., Lu, A. & Miller, L. K. Factors regulating baculovirus late and very late gene expression in transient-expression assays. <i>Journal of Virology</i> . 70, 2307-2317 (1996).
DR	BX	Prikhod'ko, E. A. & Miller, L. K. Induction of apoptosis by baculovirus transactivator IE1. <i>Journal of Virology</i> . 70, 7116-7124 (1996).
DR	BY	Palli, S. R. et al. CfMNPV blocks AcMNPV-induced apoptosis in a continuous midgut cell line. <i>Virology</i> . 222, 201-213 (1996).
DR	BZ	Duckett, C. S. et al. A conserved family of cellular genes related to the baculovirus iap gene and encoding apoptosis inhibitors. <i>Embo Journal</i> . 15, 2685-2694 (1996).
DR	CA	White, K., Tahaoglu, E. & Steller, H. Cell killing by the <i>Drosophila</i> gene reaper. <i>Science (Washington D C)</i> . 271, 805-807 (1996).
DR	CB	Liston, P. et al. Suppression of apoptosis in mammalian cells by NAIP and a related family of IAP genes. <i>Nature (London)</i> . 379, 349-353 (1996).
DR	CC	Hay, B. A., Wassarman, D. A. & Rubin, G. M. <i>Drosophila</i> homologs of baculovirus inhibitor of apoptosis proteins function to block cell death. <i>Cell</i> . 83, 1253-1262 (1995).



12	CD	Rothe, M., Pan, M. G., Henzel, W. J., Ayres, T. M. & Goeddel, D. V. The TNFR2-FRAF signaling complex contains two novel proteins related to baculoviral inhibitor of apoptosis proteins. <i>Cell</i> 83, 1243-1252 (1995).
12	CE	Mastrangelo, A. J. & Betenbaugh, M. J. Implications and applications of apoptosis in cell culture. <i>Current Opinion in Biotechnology</i> 6, 198-202 (1995).
12	CF	Harvey, A. J., Bidwai, A. P. & Miller, L. K. Doom, a Product of the Drosophila mod(mdg4) Gene, Induces Apoptosis and Binds to Baculovirus Inhibitor-of-Apoptosis Proteins. <i>Molecular and cellular biology</i> 17, 2835 (1997).
12	CG	Seshagiri, S. & Miller, L. K. <i>Caenorhabditis elegans</i> CED-4 stimulates CED-3 processing and CED-3-induced apoptosis. <i>Current Biology</i> 7, 455-460 (1997).
12	CH	Vucic, D., Seshagiri, S. & Miller, L. K. Characterization of reaper- and FADD-induced apoptosis in a lepidopteran cell line. <i>Molecular and Cellular Biology</i> 17, 667-676 (1997).
12	CI	Hawkins, C. J., Uren, A. G., Hacker, G., Medcalf, R. L. & Vaux, D. L. Inhibition of interleukin 1 beta-converting enzyme-mediated apoptosis of mammalian cells by baculovirus IAP. <i>Proc Natl Acad Sci U S A</i> 93, 13786-13790 (1996).
12	CJ	McLachlin, J. R. & Miller, L. K. Stable transformation of insect cells to coexpress a rapidly selectable marker gene and an inhibitor of apoptosis. <i>In Vitro Cell Dev Biol Anim</i> 33, 575-579 (1997).
12	CK	Vucic, D., Kaiser, W. J., Harvey, A. J. & Miller, L. K. Inhibition of reaper-induced apoptosis by interaction with inhibitor of apoptosis proteins (IAPs). <i>Proc Natl Acad Sci U S A</i> 94, 10183-10188 (1997).
12	CL	Miller, L. K. Baculovirus interaction with host apoptotic pathways. <i>J Cell Physiol</i> 173, 178-182 (1997).
12	CM	Seshagiri, S. & Miller, L. K. Baculovirus inhibitors of apoptosis (IAPs) block activation of Sf- caspase-1. <i>Proc Natl Acad Sci U S A</i> 94, 13606-13611 (1997).
12	CN	Vucic, D., Kaiser, W. J. & Miller, L. K. Inhibitor of apoptosis proteins physically interact with and block apoptosis induced by Drosophila proteins HID and GRIM. <i>Mol Cell Biol</i> 18, 3300-3309 (1998).
12	CO	Seshagiri, S., Chang, W. T. & Miller, L. K. Mutational analysis of <i>Caenorhabditis elegans</i> CED-4. <i>FEBS Lett</i> 428, 71-74 (1998).
12	CP	Resnicoff, M. et al. The baculovirus anti-apoptotic p35 protein promotes transformation of mouse embryo fibroblasts. <i>J Biol Chem</i> 273, 10376-10380 (1998).
12	CQ	Manji, G. A., Hozak, R. R., LaCount, D. J. & Friesen, P. D. Baculovirus inhibitor of apoptosis functions at or upstream of the apoptotic suppressor P35 to prevent programmed cell death. <i>J Virol</i> 71, 4509-4516 (1997).
12	CR	LaCount, D. J. & Friesen, P. D. Role of early and late replication events in induction of apoptosis by baculoviruses. <i>J Virol</i> 71, 1530-1537 (1997).
12	CS	Clem, R. J. et al. Modulation of cell death by Bcl-XL through caspase interaction. <i>Proc Natl Acad Sci U S A</i> 95, 554-559 (1998).
12	CT	Bergmann, A., Agapite, J. & Steller, H. Mechanisms and control of programmed cell death in invertebrates. <i>Oncogene</i> 17, 3215-3223 (1998).
12	CU	Kaiser, W. J., Vucic, D. & Miller, L. K. The Drosophila inhibitor of apoptosis D-IAP1 suppresses cell death induced by the caspase drICE. <i>FEBS Lett</i> 440, 243-248 (1998).
12	CV	Vucic, D., Kaiser, W. J. & Miller, L. K. A mutational analysis of the baculovirus inhibitor of apoptosis Op-IAP. <i>J Biol Chem</i> 273, 33915-33921 (1998).
12	CW	Sah, N. K. et al. The baculovirus antiapoptotic p35 gene also functions via an oxidant- dependent pathway [In Process Citation]. <i>Proc Natl Acad Sci U S A</i> 96, 4838-4843 (1999).
12	CX	Izquierdo, M. et al. Blocked negative selection of developing T cells in mice expressing the baculovirus p35 caspase inhibitor. <i>Embo J</i> 18, 156-166 (1999).
12	CY	Bose, R. et al. Ceramide generation by the Reaper protein is not blocked by the caspase inhibitor, p35. <i>J Biol Chem</i> 273, 28852-28859 (1998).
12	CZ	Lee, J. C., Chen, H. H. & Chao, Y. C. Persistent baculovirus infection results from deletion of the apoptotic suppressor gene p35. <i>J Virol</i> 72, 9157-9165 (1998).



1	DA	Zhou, Q. et al. Interaction of the baculovirus anti-apoptotic protein p35 with caspases. Specificity, kinetics, and characterization of the caspase/p35 complex. <i>Biochemistry</i> 37, 10757-10765 (1998).
2	DB	Morishima, N., Okano, K., Shibata, T. & Maeda, S. Homologous p35 proteins of baculoviruses show distinctive anti-apoptotic activities which correlate with the apoptosis-inducing activity of each virus. <i>FEBS Lett</i> 427, 144-148 (1998).
3	DC	Seshagiri, S. & Miller, L. K. Baculovirus inhibitors of apoptosis (IAPs) block activation of Sf- caspase-1. <i>Proc Natl Acad Sci U S A</i> 94, 13606-13611 (1997).
4	DD	Griffiths, C. M. et al. In vitro host range of <i>Autographa californica</i> nucleopolyhedrovirus recombinants lacking functional p35, iap1 or iap2. <i>J Gen Virol</i> 80, 1055-1066 (1999).
5	DE	Ekert, P. G., Silke, J. & Vaux, D. L. Inhibition of apoptosis and clonogenic survival of cells expressing crmA variants: optimal caspase substrates are not necessarily optimal inhibitors. <i>Embo J</i> 18, 330-338 (1999).
6	DF	Du, Q., Lehavi, D., Faktor, O., Qi, Y. & Chejanovsky, N. Isolation of an apoptosis suppressor gene of the <i>Spodoptera littoralis</i> nucleopolyhedrovirus. <i>J Virol</i> 73, 1278-1285 (1999).
7	DG	Dai, X., Shi, X., Pang, Y. & Su, D. Prevention of baculovirus-induced apoptosis of BTI-Tn-5B1-4 (Hi5) cells by the p35 gene of <i>Trichoplusia ni</i> multicapsid nucleopolyhedrovirus. <i>J Gen Virol</i> 80, 1841-1845 (1999).
8	DH	Miller, L. K. An exegesis of IAPs: salvation and surprises from BIR motifs. <i>Trends Cell Biol</i> 9, 323-328 (1999).
9	DI	Rhee, W. J., Kim, E. J. & Park, T. H. Kinetic Effect of Silkworm Hemolymph on the Delayed Host Cell Death in an Insect Cell-Baculovirus System. <i>Biotechnol Prog</i> 15, 1028-1032 (1999).
10	DJ	Accession Number L22858, <i>Autographa californica</i> Nuclear Polyhedrosis Virus Clone C6, Complete Genome, Nucleotide QUERY.

EXAMINER

David Gurr

8/22/00